the 0.0% specimens for both pre-cracked and post-cracked specimens. This is also true at the second stage (removal from chamber at six months) for the 0.0% specimens. At the third stage, there only two outliers to this trend. Finally, at the fourth stage (removal from the bath after 12 months), all specimens with corrosion inhibitors display less surface rust than their control counterparts at 0.0% initial chloride contamination.

These same observations also hold true at the 0.5% initial chloride contamination level. However, at the 1.0% initial chloride level and above, the difference between the performance of the corrosion inhibitors and no corrosion inhibitor specimens greatly decreases. Therefore, it can be concluded from this data that the effectiveness of the corrosion inhibitors decreases after the initial chloride contamination level of 0.5%, regardless of the time of environmental exposure.

The second method of visual evaluation involved estimating a percent rib loss in the mid-section for each specimen. This was carried out after the surface rust evaluations and a light cleaning with a non-wire bristle brush had taken place. The following figures 4.28, 4.29, and 4.30 show a sampling of the rib loss graphs for the first set of specimens removed from their environments.

Figures 4.31, 4.32, and 4.33 show the percent rib loss for a sampling of the second set of specimens removed from their testing environments.
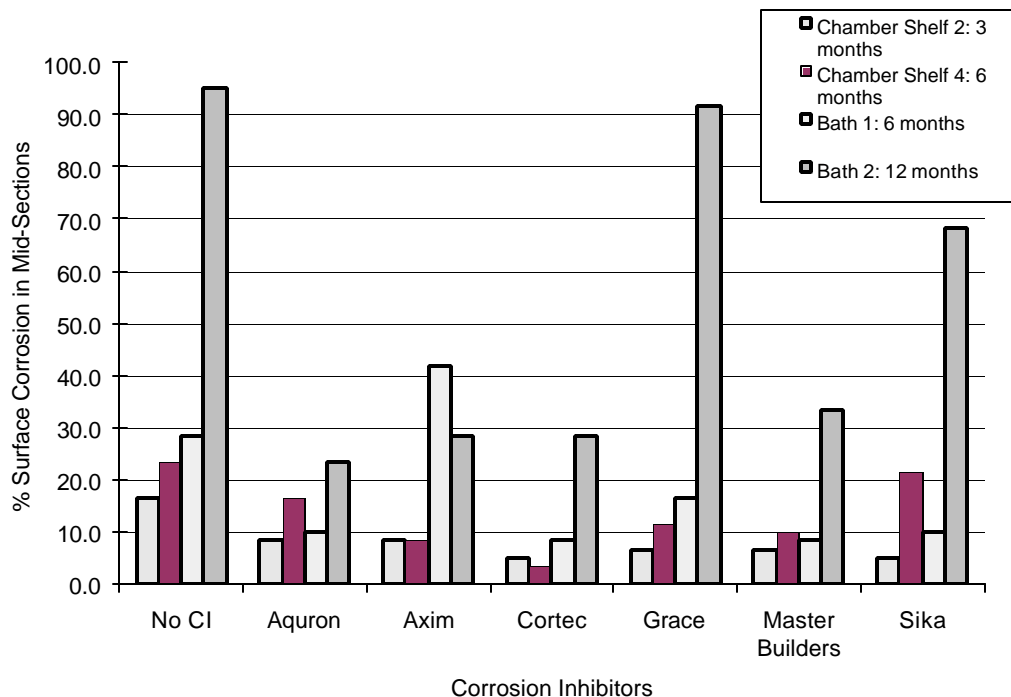

Figure 4.27 – Time Step of Surface Corrosion for 0.0% Chloride, Pre-Cracked Specimens